

SAGA-Pilot

Milestone 2 Demo - Nov. 18, 2013
only ~3 days behind schedule :-)

Resources

- Github repository: <https://github.com/saga-project/saga-pilot>
- Wiki: <https://github.com/saga-project/saga-pilot/wiki>

Objectives

- <https://github.com/saga-project/saga-pilot/wiki/Sp1-roadmap-and-milestones>
 - submit 1 Pilot to india
 - run 1 bulk of 10 CUs on that pilot (CUs have constant runtime)
 - state pulling from application reports CU and Pilot states truthfully
 - performance for above is measured and reported routinely

Demo Script

- https://github.com/saga-project/saga-pilot/blob/master/examples/milestones/demo_milestone_02.py
- Starts a 16-core pilot on India
- Submits 64 /bin/date work units
- Waits for work units to complete and exits

Machine Configuration

- Hosted machine / cluster configuration files:

```
LINE 10: FGCONF = 'https://raw.githubusercontent.com/saga-project/saga-pilot/master/
configs/futuregrid.json'
```

- PilotManager 'knows' configuration:

```
LINE 24: pm = sinon.PilotManager(session=session,
resource_configurations=FGCONF)
```

- Pilot Description References configuration:

```
LINE 27: pd = india.ComputePilotDescription()
         pd.resource = "futuregrid.INDIA"
         pd.cores = 16
         india_pilot = pm.submit_pilots(pd)
```

Machine Configuration

- Behind the scenes — futuregrid.json:

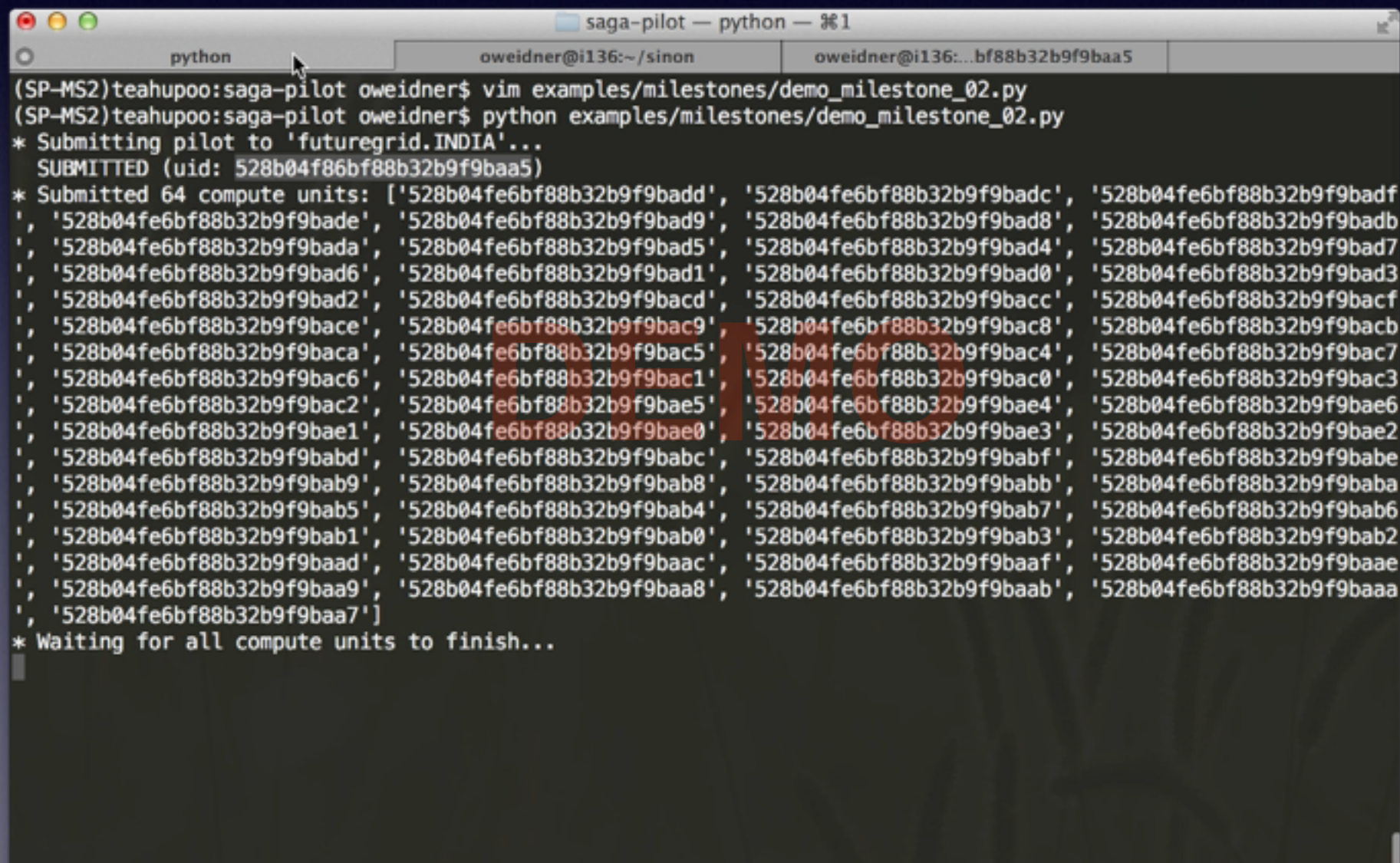
```
"futuregrid.INDIA": {  
  "URL" : "pbs+ssh://india.futuregrid.org",  
  "working_directory" : "sftp://india.futuregrid.org/N/u/oweidner/sinon/",  
  "python_interpreter" : "/N/soft/python/2.7/bin/python",  
  "pre_bootstrap" : ["module load python", "module load openmpi"],  
  ...  
  "spmd_variation" : # not required for india...  
}
```

Note: /N/u/oweidner will be replaced with \$HOME as soon as <https://github.com/saga-project/saga-python/issues/279> is fixed ;-)

- This address two shortcomings of BigJob:
 - The .bashrc, module load, Python version, environment setup mess
 - Any ambiguities in PilotDescription

Demo

<https://vimeo.com/79756803>



```
saga-pilot — python — 361
python
oweidner@i136:~/sinon
oweidner@i136:...bf88b32b9f9baa5
(SP-MS2)teahupoo:saga-pilot oweidner$ vim examples/milestones/demo_milestone_02.py
(SP-MS2)teahupoo:saga-pilot oweidner$ python examples/milestones/demo_milestone_02.py
* Submitting pilot to 'futuregrid.INDIA'...
  SUBMITTED (uid: 528b04f86bf88b32b9f9baa5)
* Submitted 64 compute units: ['528b04fe6bf88b32b9f9badd', '528b04fe6bf88b32b9f9badc', '528b04fe6bf88b32b9f9badf',
  '528b04fe6bf88b32b9f9bade', '528b04fe6bf88b32b9f9bad9', '528b04fe6bf88b32b9f9bad8', '528b04fe6bf88b32b9f9badb',
  '528b04fe6bf88b32b9f9bada', '528b04fe6bf88b32b9f9bad5', '528b04fe6bf88b32b9f9bad4', '528b04fe6bf88b32b9f9bad7',
  '528b04fe6bf88b32b9f9bad6', '528b04fe6bf88b32b9f9bad1', '528b04fe6bf88b32b9f9bad0', '528b04fe6bf88b32b9f9bad3',
  '528b04fe6bf88b32b9f9bad2', '528b04fe6bf88b32b9f9bacd', '528b04fe6bf88b32b9f9bacc', '528b04fe6bf88b32b9f9bacf',
  '528b04fe6bf88b32b9f9bace', '528b04fe6bf88b32b9f9bac9', '528b04fe6bf88b32b9f9bac8', '528b04fe6bf88b32b9f9bacb',
  '528b04fe6bf88b32b9f9baca', '528b04fe6bf88b32b9f9bac5', '528b04fe6bf88b32b9f9bac4', '528b04fe6bf88b32b9f9bac7',
  '528b04fe6bf88b32b9f9bac6', '528b04fe6bf88b32b9f9bac1', '528b04fe6bf88b32b9f9bac0', '528b04fe6bf88b32b9f9bac3',
  '528b04fe6bf88b32b9f9bac2', '528b04fe6bf88b32b9f9bae5', '528b04fe6bf88b32b9f9bae4', '528b04fe6bf88b32b9f9bae6',
  '528b04fe6bf88b32b9f9bae1', '528b04fe6bf88b32b9f9bae0', '528b04fe6bf88b32b9f9bae3', '528b04fe6bf88b32b9f9bae2',
  '528b04fe6bf88b32b9f9babd', '528b04fe6bf88b32b9f9babc', '528b04fe6bf88b32b9f9babf', '528b04fe6bf88b32b9f9babe',
  '528b04fe6bf88b32b9f9bab9', '528b04fe6bf88b32b9f9bab8', '528b04fe6bf88b32b9f9babb', '528b04fe6bf88b32b9f9baba',
  '528b04fe6bf88b32b9f9bab5', '528b04fe6bf88b32b9f9bab4', '528b04fe6bf88b32b9f9bab7', '528b04fe6bf88b32b9f9bab6',
  '528b04fe6bf88b32b9f9bab1', '528b04fe6bf88b32b9f9bab0', '528b04fe6bf88b32b9f9bab3', '528b04fe6bf88b32b9f9bab2',
  '528b04fe6bf88b32b9f9baad', '528b04fe6bf88b32b9f9baac', '528b04fe6bf88b32b9f9baaf', '528b04fe6bf88b32b9f9baae',
  '528b04fe6bf88b32b9f9baa9', '528b04fe6bf88b32b9f9baa8', '528b04fe6bf88b32b9f9baab', '528b04fe6bf88b32b9f9baaa',
  '528b04fe6bf88b32b9f9baa7']
* Waiting for all compute units to finish...
```

Agent Development

- Agent bootstraps reliably on most Futuregrid and XSEDE (!) machines!
- Agent is now part of the saga-pilot codebase: <https://github.com/saga-project/saga-pilot/tree/master/src/sinon/agent> (but can still be used independently).
- New 'task source', 'task results' and 'events' plug-ins for SAGA-Pilot / MongoDB

Accomplishments

- Milestone 2 Requirements (except for benchmarking — will work with Antons on this)
- More work on documentation: <http://saga-pilot.readthedocs.org/en/latest/>
- Lots of improvements with agent bootstrapping (one of BigJob's major achilles heels)
- **Basic Pilot-Job functionality established !!**

Next Two Weeks

- Extensive cleanup
 - In some spots the code is still messy / redundant
 - Better error handling needed
- Make agent work on dynamic wu unit pools (currently, only static work unit pools work)
- Get Ashley and Antons started